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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/773,478 | 01/31/2001 | Huanzhao Zeng | 10004431-1 | 4124 |

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Intellectual Property Administration
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EXAMINER

SUKHAPHADHANA, CHRISTOPHER T

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2625 | 3 |

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/773,478

Applicant(s)

ZENG, HUANZHAO

Examiner

Christopher T. Sukhaphadhana

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 1-20** are rejected under 35 U.S.C. 102(b) as being anticipated by Zheng (*Gamut Mapping in Multiple Color Spaces*, 25-28 Jan 2000, cited in IDS filed 31 January 2001, “Zheng”).

3. In regards to **claim 1**, Zheng discloses a method for color processing (page 301, abstract), comprising the steps of: defining a composite color space (page 305, Fig 4) in a memory of a computer system, the composite color space having a number of color space portions (Fig 4, *B region*, *G region*, and *R region*) and a number of transition portions (Fig 4, *G_B region*, *R_G region*, and *B_R region*) between adjacent ones of the color space portions; and converting (paragraph bridging page 302-303) an input color space representation of a color (gamut mapping from monitor display) into a composite color space representation (page 305, Fig 4) of the color in the computer system.

4. In regards to **claim 2**, Zheng discloses in section 2, on page 302, the method further comprising the step of gamut mapping the color in the composite color space to obtain a representation of the color in the composite color space that is reproducible by an output device.

5. In regards to **claim 3**, Zheng further discloses in Fig 3 (CIE $L^*u^*v^*$ and CIE $L^*a^*b^*$) and section 5 on page 305, the step of defining the composite color space further comprising the step of defining each of the color space portions as a portion of a predefined color space.

6. In regards to **claim 4**, Zheng further discloses in the first line on page 306 (weighting of each color space), the step of defining the composite color space further comprising the step of defining a color space within each of the transition portions as a hybrid of the color space portions adjacent thereto.

7. In regards to **claim 5**, Zheng further discloses the step of converting an input color space representation of the color into the composite color space representation of the color in the computer system further comprises the steps of: defining a number of color space conversions (page 306, line 3) associated with a respective number of hue angles ranges (page 306, lines 1-2) to convert the input color space representation of the color into the composite color space representation of the color (Fig 4, page 305); identifying (paragraph bridging page 303-304) one of the color space conversions corresponding to a hue angle associated with the color; and converting (paragraph bridging page 303-304 and section 5, page 304) the input color space representation to the composite color space representation of the color based on the respective color space conversion.

8. In regards to **claim 6**, Zheng further discloses in the first line and Fig 3, on page 305, the step of converting the input color space representation to the composite color space representation of the color based on the respective color space conversion further comprising the step of calculating the composite color space representation in one of the transition portions as a weighted sum of the color space representations of adjacent ones of the color space portions.

9. In regards to **claims 7-12**, all the elements set forth in these claims have been addressed in the arguments of claims 1-6, respectively.

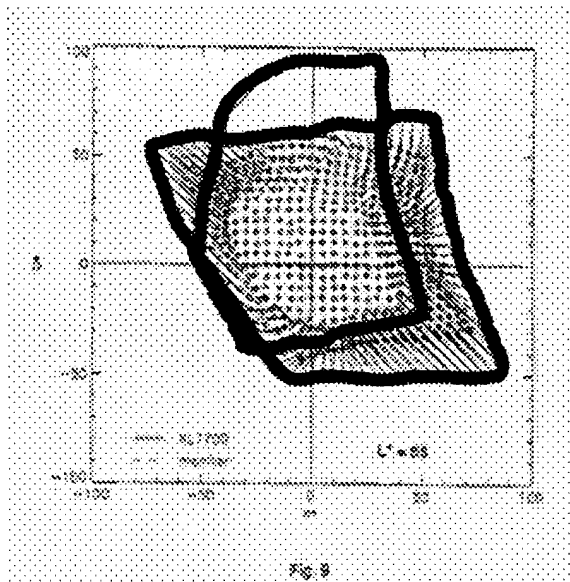
10. In regards to **claims 13-16**, all the elements set forth in these claims have been addressed in the arguments of claims 1-4, respectively.

11. In regards to **claims 17-20**, all the elements set forth in these claims have been addressed in the arguments of claims 1-4, respectively.

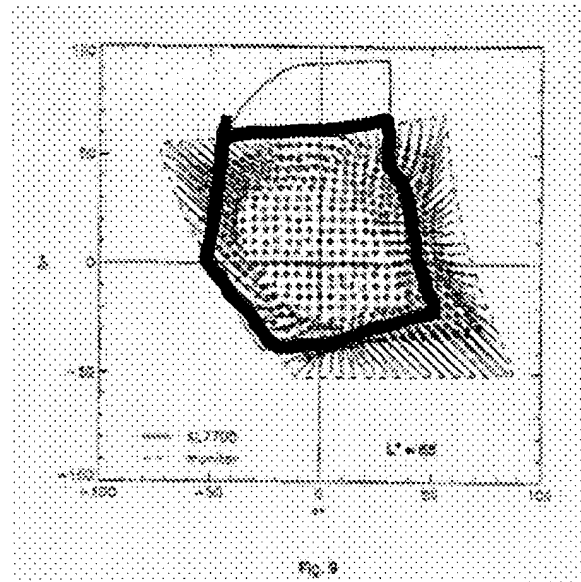
12. **Claims 1-4, 7-10, and 13-20** are rejected under 35 U.S.C. 102(b) as being anticipated by Ellson et al (U.S. Patent 5,583,666, newly cited, "Ellson").

13. In regards to **claim 1**, Ellson discloses a method for color processing (Fig 3), comprising the steps of: defining a composite color space (Fig 9 and Fig 10) in a memory of a computer system, the composite color space having a number of color space portions ($XL7700 \setminus \text{monitor}$ and $\text{monitor} \setminus XL770$, Fig 9) and a number of transition portions ($XL7700 \cap \text{monitor}$, Fig 9) between adjacent ones of the color space portions; and converting (col 4, lines 49-64) an input color space representation of a color (monitor RGB) into a composite color space representation (CIELAB, Fig 9 and 10) of the color in the computer system.

Note that the following figures illustrate the color space portions (ECSP) and the transition portions (ETSP) as represented in Fig 9 of Ellson (bold added).



ECSP: Ellson color space portion (areas in bold)



ETSP: Ellson transition space portion (area in bold)

Further note that the ETSP is “transition space” because points outside the ETSP are “transitioned” or mapped into the ETSP. Also, ECSP is color space portion because it is a defined subspace of the CIELAB color space. The ECSP portions are the areas of the color gamuts that are inside either the XL7700 color space or the monitor color space, but not inside both. The ETSP portion is the area of the color gamuts that are inside both the XL7700 color space and the monitor color space.

14. In regards to **claim 2**, Ellson discloses in Fig 9 and 10 and col 8, lines 18-50, the method further comprising the step of gamut mapping the color in the composite color space to obtain a representation of the color in the composite color space that is reproducible by an output device.

15. In regards to **claim 3**, Ellson further discloses in Fig 9 and 10, the step of defining the composite color space further comprising the step of defining each of the color space portions as

a portion of a predefined color space. Note that as indicated in the ECSP figure above, each portion of the ECSP is defined in relation to the predefined XL7700 and monitor color gamuts.

16. In regards to **claim 4**, Ellson further discloses in Fig 9 and 10, the step of defining the composite color space further comprising the step of defining a color space within each of the transition portions as a hybrid of the color space portions adjacent thereto. Note that the ETSP is the area of the color space common to both the XL7700 and monitor color spaces.

17. In regards to **claims 7-10, 13-16, and 17-20**, for each of these groups, all the elements set forth in these claims have been addressed in the arguments of claims 1-4.

18. **Claims 1-4, 7-10, and 13-20** are rejected under 35 U.S.C. 102(e) as being anticipated by Cecchi et al (U.S. Patent 6,532,081 B1, newly cited, "Cecchi").

19. In regards to **claim 1**, Cecchi discloses a method for color processing (Fig 1), comprising the steps of: defining a composite color space (Fig 2) in a memory of a computer system, the composite color space having a number of color space portions (ref no 44 and 46) and a number of transition portions (ref no 52, 54, and 56) between adjacent ones of the color space portions; and converting (col 3, line 66) an input color space representation of a color (RGB) into a composite color space representation (Fig 2 and col 5, lines 25-42) of the color in the computer system.

20. In regards to **claim 2**, Cecchi discloses in col 6, lines 22-43, the method further comprising the step of gamut mapping the color in the composite color space to obtain a representation of the color in the composite color space that is reproducible by an output device.

21. In regards to **claim 3**, Cecchi further discloses in col 5, lines 25-42, and the paragraph bridging col 3-4, the step of defining the composite color space further comprising the step of defining each of the color space portions as a portion of a predefined color space.

22. In regards to **claim 4**, Cecchi further discloses in Fig 2, ref no 52, 54, and 56, and col 6, lines 22-43, the step of defining the composite color space further comprising the step of defining a color space within each of the transition portions as a hybrid of the color space portions adjacent thereto.

23. In regards to **claims 7-10, 13-16, and 17-20**, for each of these groups, all the elements set forth in these claims have been addressed in the arguments of claims 1-4.

24. **Claims 1-4, 7-10, and 13-20** are rejected under 35 U.S.C. 102(e) as being anticipated by Bhattacharjya et al (U.S. Patent 6,546,132 B1, newly cited, "Bhattacharjya").

25. In regards to **claim 1**, Bhattacharjya discloses a method for color processing (Fig 5), comprising the steps of: defining a composite color space (Fig 4 and col 5, lines 7-24) in a memory of a computer system, the composite color space having a number of color space portions (regions exclusively in text or image region, col 5, lines 11-15, re: C1 and C2) and a number of transition portions (intersection of text region and one or more of the image regions, col 5, lines 16-19, re: C3) between adjacent ones of the color space portions (Fig 4); and converting (paragraph bridging col 4-5) an input color space representation of a color into a composite color space representation of the color in the computer system.

26. In regards to **claim 2**, Bhattacharjya discloses in col 7, lines 22-41, and Fig 5, ref no 42, 44 and 46, the method further comprising the step of gamut mapping the color in the composite

Art Unit: 2625

color space to obtain a representation of the color in the composite color space that is reproducible by an output device.

27. In regards to **claim 3**, Bhattacharjya further discloses in the paragraph bridging col 8-9, the step of defining the composite color space further comprising the step of defining each of the color space portions as a portion of a predefined color space.

28. In regards to **claim 4**, Bhattacharjya further discloses in Fig 4, ref no C3, and col 5, lines 16-24, the step of defining the composite color space further comprising the step of defining a color space within each of the transition portions as a hybrid of the color space portions adjacent thereto.

29. In regards to **claims 7-10, 13-16, and 17-20**, for each of these groups, all the elements set forth in these claims have been addressed in the arguments of claims 1-4.

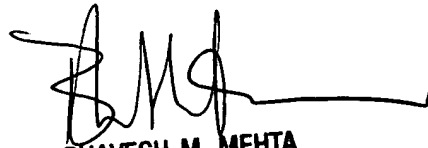
Conclusion

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher T. Sukhaphadhana whose telephone number is 703-306-4148. The examiner can normally be reached on 9a-4p M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh M. Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3800.

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